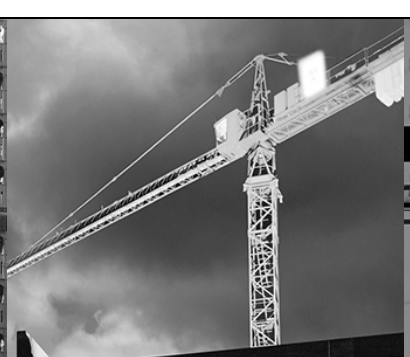
SEW EURODRIVE

DR Motor
Common Connection Diagrams

Edition 06/2010

9PD0058 / US




MAX.GW.
TARE
MAX.CW.
CU.CAP.
KKFU 144794 3
42G1

1 Overview

This document details common connection diagrams for DR motor. This is not a replacement for the Operating Instructions. Always refer to the Operating Instructions for safety and installation information. Additional resources and information for DR motor “BE” brakes can be found at www.seweurodrive.com under the Technical Notes tab.

There are specific instances when the brake voltage can be tapped directly from the motor's terminal block. The advantage of brake systems wired in this way is when power is applied to the motor, the brake releases (requiring no additional brake supply wiring).

The brake can be wired to the motor terminal block under the following conditions: a single speed motor, the motor is started and run across the line, and the brake voltage is equal to either the low or high motor voltage.

The brake must be powered separately if the brake voltage does not equal the low or high motor voltage, the motor is powered by an inverter, or electronic soft start.

2 Important notes

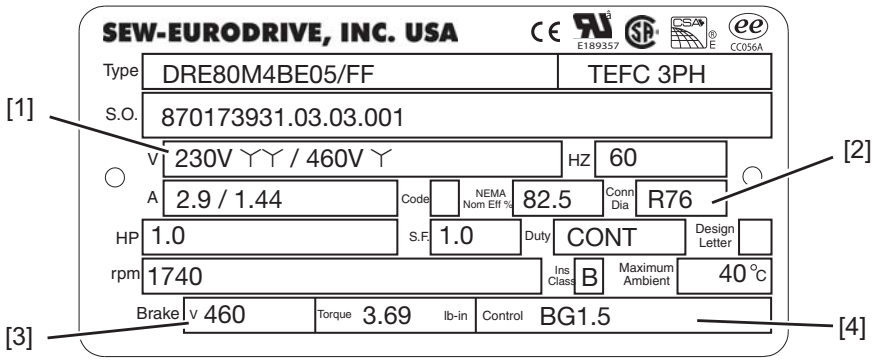
2.1 Safety notes

Refer to the Operating Instructions for safety and installation information. The latest version can be found at www.seweurodrive.com.

Installation, startup and service work may only be performed by trained personnel observing applicable accident prevention regulations and operating instructions.

2.2 Motor nameplate

Refer to the motor nameplate for information that describes the motor data. Some of the important fields related to the connection are listed below.



[1] Motor Voltage - Lists the motor voltage and configuration. Example: 230V ⋎⋎ / 460V ⋎.

[2] Connection Type - Lists the basic type of connection indicating the type of internal motor windings, ⋎⋎, ⋎, △, etc. Example: R76. This value may also be followed by a series of letters and/or numbers.

[3] Brake Voltage - Lists the brake voltage required to operate the brake. Example: 460V.

[4] Brake Control - Lists the brake control type. Example: BG, BGE, BSR, etc. These maybe followed by additional characters.

2.3 Connecting the brake from the terminal block

2.3.1 BGE/BG

When connecting the supply power from the motor terminal block to the brake rectifier, follow the specifications below.

Connecting wire is to be AWG14, MTW, 600V, 105°C temperature rating and black color.

The recommended ring terminals are manufactured by Thomas & Betts or equivalent. Follow the manufacturer's recommendations for installation procedures.

DR Motor Frame Size	Wire Length	Thomas & Betts Ring Terminal	Thomas & Betts Crimp Tool
DR.71-100	8"	RB14-8	WT2000
DR.112-132	8"	RB14-10	
DR.160	10"	RB 14-14	
DR.180-225	12"	RB 14-516	

2.3.2 BSR (R76 only)

When connecting the jumper wire between the 2-pole terminal block for the SR relay and the motor terminal block, follow the specifications below.

Connecting wire is to be MTW, 600V, 105°C temperature rating and black color. Maximum length 8", trimmed to fit.

The recommended ring terminals are manufactured by Thomas & Betts or equivalent. Follow the manufacturers recommendations for installation procedures.

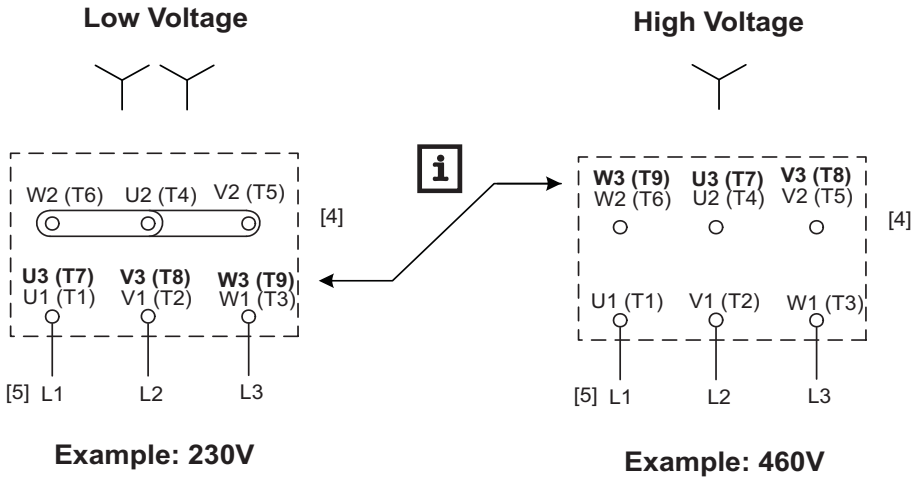
DR Motor Frame Size	AWG	Thomas & Betts Ring Terminal	Thomas & Betts Crimp Tool
DR.71-100	14	RB14-8	WT2000
DR.112-132	14	RB14-10	
DR.160	12	RB 10-14	

3 R76

Connection Type R76

Single Speed, Dual Voltage

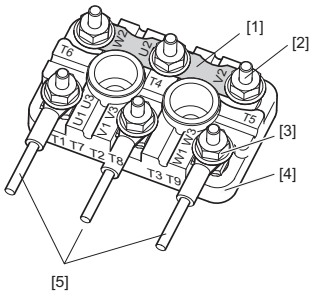
Example: 230V ⋎⋎ / 460V ⋎



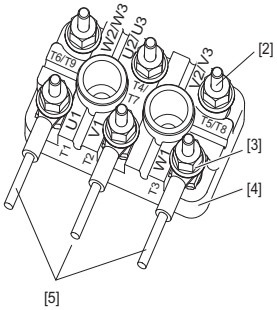
Example: 230V

Example: 460V

Arrangement of terminal links for ⋎⋎ connection



No terminal links required for ⋎ connection



[1] Terminal link

[2] Terminal stud

[3] Flange nut

[4] Terminal board

[5] Voltage supply (Customer connection)

VOLTAGE CHANGE

Three wires must be relocated and terminal links added to change from high to low voltage.

The wires designated U3 (T7), V3 (T8) and W3 (T9) must be reconnected and terminal links added as shown in the diagram.

Changing from low to high voltage is carried out in reverse order.

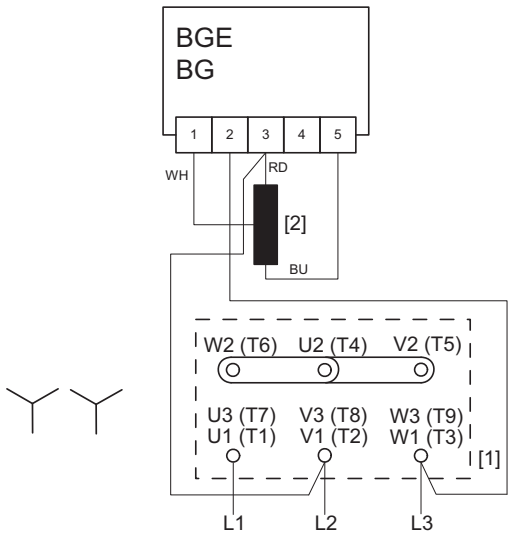
In both cases, the supply voltage is connected to U1 (T1), V1 (T2) and W1 (T3). The direction of rotation is changed by exchanging two wires.

3.1 Brake Voltage Supplied from the Motor

3.1.3 BGE/BG - Motor = 230V; Brake = 230V

Brake Control: BGE/BG. Motor configured for low voltage. Brake voltage matches the low motor voltage.

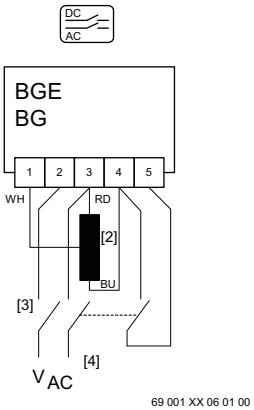
- Example: 230V ⋎⋎ / 460V ⋎ motor configured for 230V (⋎⋎) supply voltage
- Brake voltage is 230V (normal reaction time)*



Example: 230V

68051 _ 06 02 01 R76H US

* BGE/BG Rapid Reaction Time



69 001 XX 06 01 00

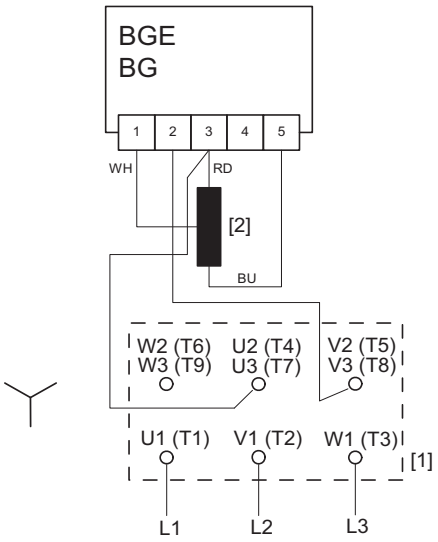
[1] Motor terminal board
[2] Brake coil
[3] Customer supplied contacts
[4] Brake supply voltage

BU - blue
RD - red
WH - white

3.1.4 BGE/BG - Motor = 460V; Brake = 230V

Brake Control: BGE/BG. Motor configured for high voltage. Brake voltage matches the low motor voltage.

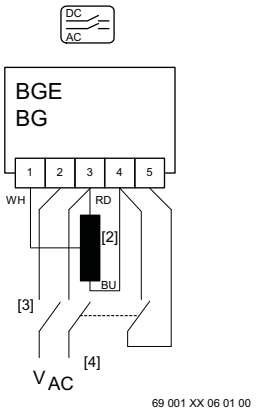
- Example: 230V ⋎⋎ / 460V ⋎ motor configured for 460V (⋎) supply voltage
- Brake voltage is 230V (normal reaction time)*



Example: 460V

68052 _ 06 02 02 R76I US

* BGE/BG Rapid Reaction Time



69 001 XX 06 01 00

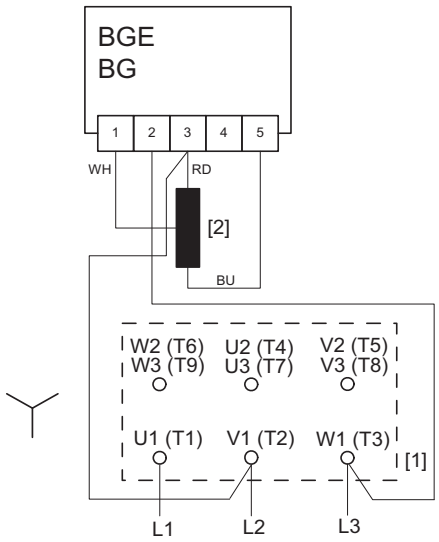
[1] Motor terminal board
[2] Brake coil
[3] Customer supplied contacts
[4] Brake supply voltage

BU - blue
RD - red
WH - white

3.1.5 BGE/BG - Motor = 460V; Brake = 460V

Brake Control: BGE/BG. Motor configured for high voltage. Brake voltage matches the high motor voltage.

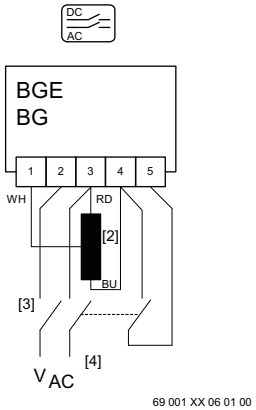
- Example: 230V ⋎⋎ / 460V ⋎ motor configured for 460V (⋎) supply voltage
- Brake voltage is 460V (normal reaction time)*



Example: 460V

68053 _ 06 02 01 R76J US

* BGE/BG Rapid Reaction Time



69 001 XX 06 01 00

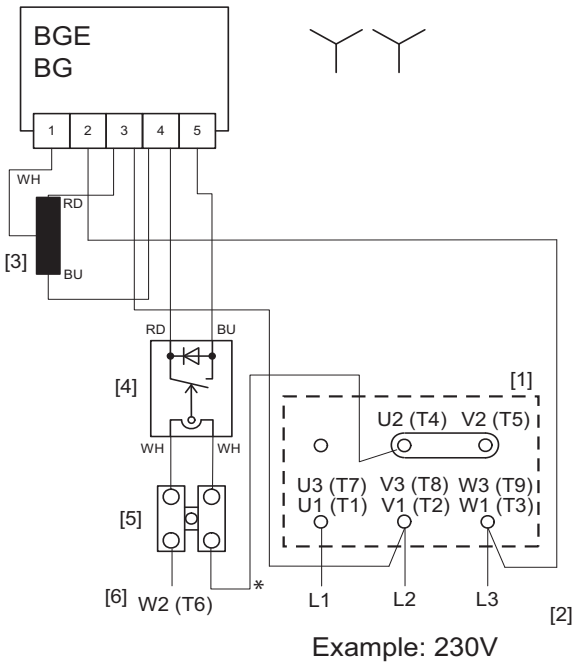
[1] Motor terminal board
[2] Brake coil
[3] Customer supplied contacts
[4] Brake supply voltage

BU - blue
RD - red
WH - white

3.1.6 BSR - Motor = 230V; Brake = 230V

Brake Control: BSR. Motor configured for low voltage. Brake voltage matches the low motor voltage.

- Example: 230V ⋎⋎ / 460V ⋎ motor configured for 230V (⋎⋎)
- Brake voltage is 230V



*refer to section 1.3.2

68046 _ 06 02 02 R76C US

[1] Motor terminal board

[2] Supply leads

[3] Brake coil

[4] SR current relay

[5] Terminal strip

[6] Wire end from stator winding

BU - blue

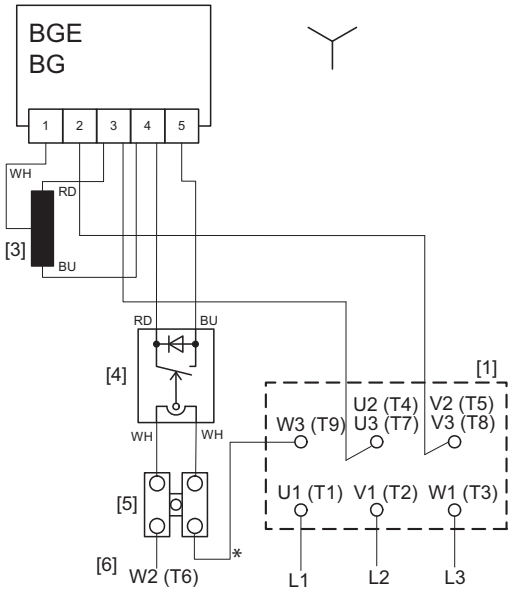
RD - red

WH - white

3.1.7 BSR - Motor = 460V; Brake = 230V

Brake Control: BSR. Motor configured for high voltage. Brake voltage matches the low motor voltage.

- Example: 230V ⋎⋎ / 460V ⋎ motor configured for 460V (⋎)
- Brake voltage is 230V



Example: 460V

*refer to section 1.3.2

68047 _ 06 02 02 R76D US

[1] Motor terminal board

[2] Supply leads

[3] Brake coil

[4] SR current relay

[5] Terminal strip

[6] Wire end from stator winding

BU - blue

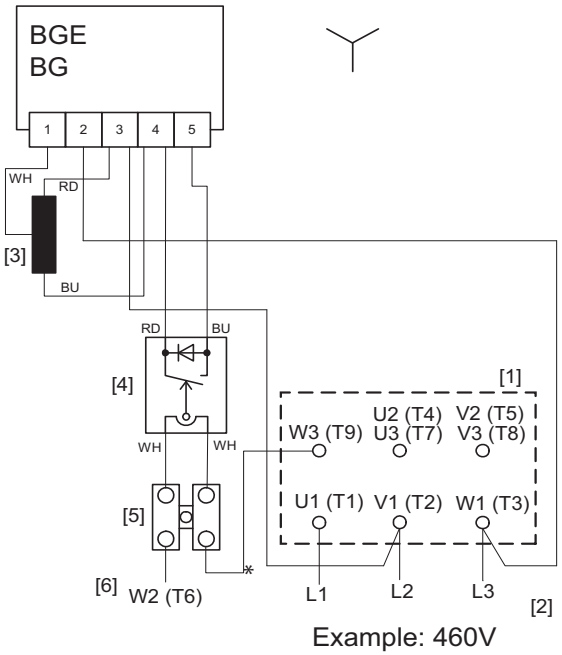
RD - red

WH - white

3.1.8 BSR - Motor = 460V; Brake = 460V

Brake Control: BSR. Motor configured for high voltage. Brake voltage matches the high motor voltage.

- Example: 230V ⋎⋎ / 460V ⋎ motor configured for 460V (⋎)
- Brake voltage is 460V



Example: 460V

*refer to section 1.3.2

68048 _ 06 02 01 R76E US

[1] Motor terminal board

[2] Supply leads

[3] Brake coil

[4] SR current relay

[5] Terminal strip

[6] Wire end from stator winding

BU - blue

RD - red

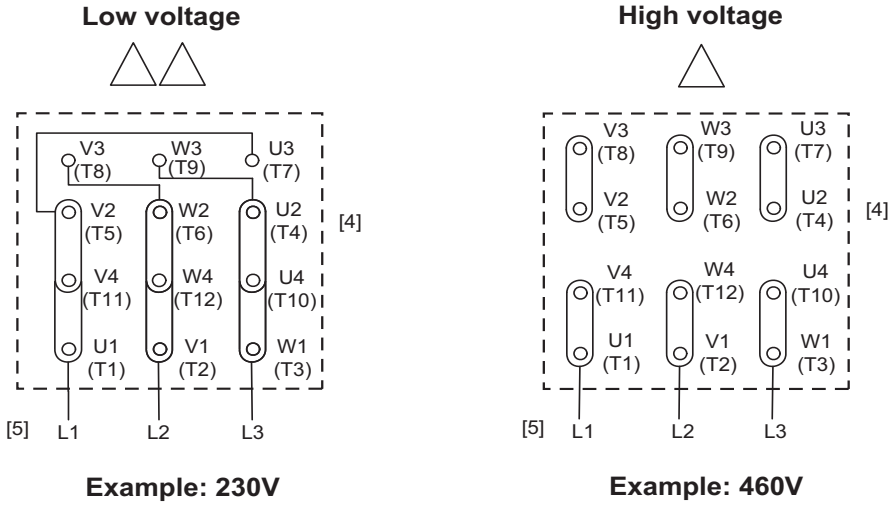
WH - white

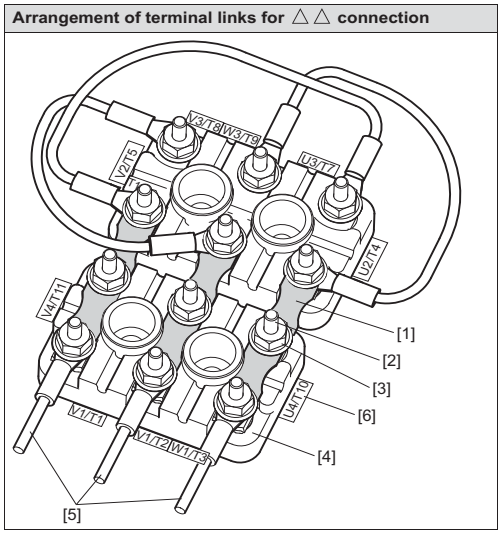
4 R72

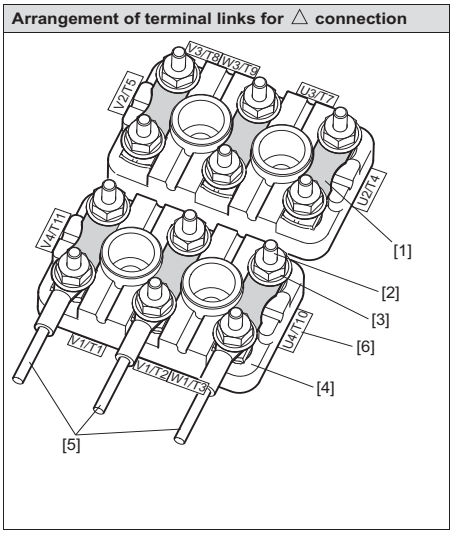
Connection Type R72

Single Speed, Dual Voltage

Example Voltage: 230V △△ / 460V △







[1] Terminal link

[2] Terminal stud

[3] Flange nut

[4] Terminal board

[5] Voltage supply (Customer connection)

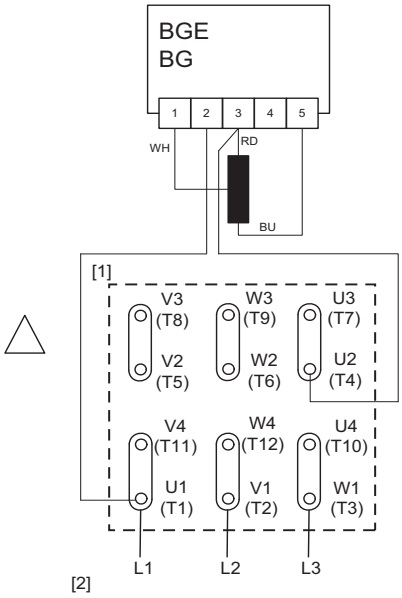
[6] Wiring designation plate

4.1 Brake Voltage Supplied from the Motor

4.1.9 BGE/BG - Motor = 460V; Brake = 230V

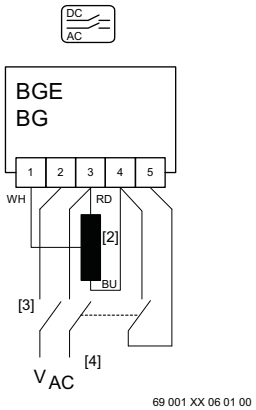
Brake Control: BGE/BG. Motor configured for high voltage. Brake voltage matches the low motor voltage.

- Example: 230V △△ / 460V △ motor configured for 460V (△)
- Brake voltage is 230V (normal reaction time)*



Example: 460V

* BGE/BG Rapid Reaction Time



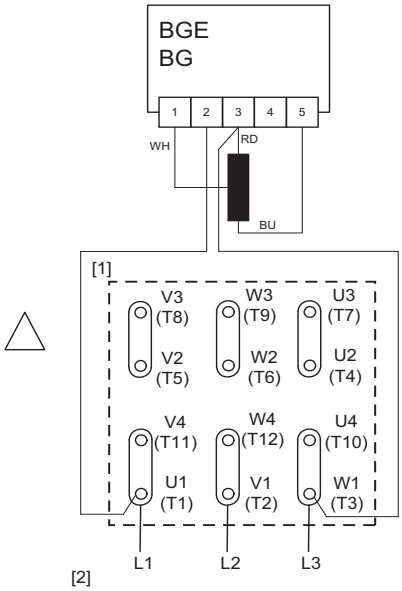
[1] Motor terminal board
[2] Supply leads
[3] Customer supplied contacts
[4] Brake supply voltage

BU - blue
RD - red
WH - white

4.1.10 BGE/BG - Motor = 460V; Brake = 460V

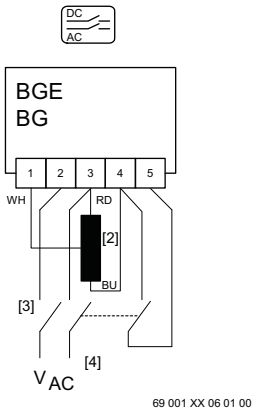
Brake Control: BGE/BG. Motor configured for high voltage. Brake voltage matches the high motor voltage.

- Example: 230V △△ / 460V △ motor configured for 460V (△)
- Brake voltage is 460V (normal reaction time)*



Example: 460V

* BGE/BG Rapid Reaction Time



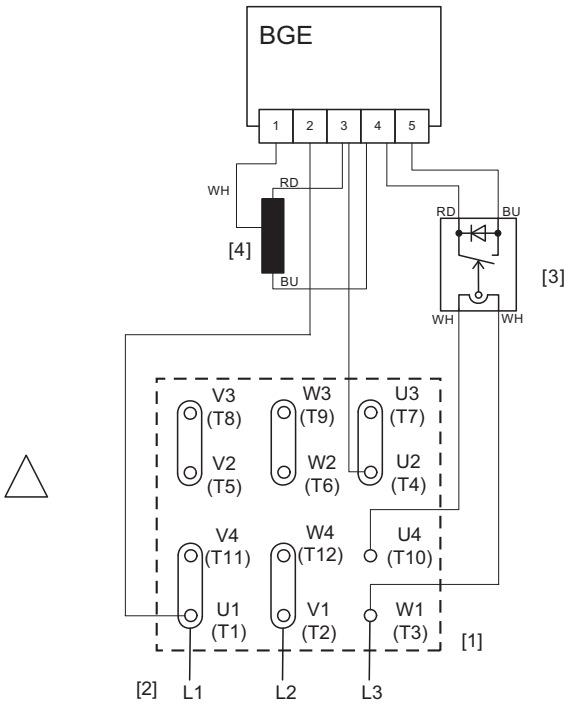
[1] Motor terminal board
[2] Supply leads
[3] Customer supplied contacts
[4] Brake supply voltage

BU - blue
RD - red
WH - white

4.1.11 BSR - Motor = 460V; Brake = 230V

Brake Control: BSR. Motor configured for high voltage. Brake voltage matches the low motor voltage.

- Example: 230V △△ / 460V △ motor configured for 460V (△)
- Brake voltage is 230V



Example: 460V

69043 _ 09 01 01 R72-1D US

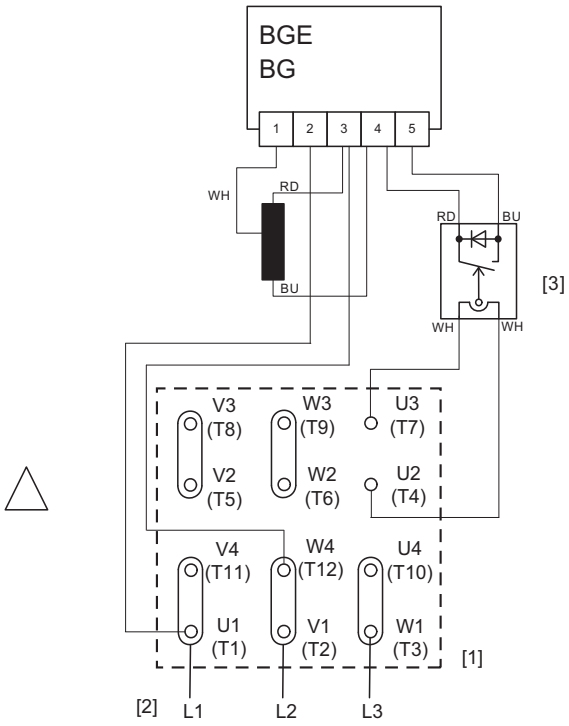
[1] Motor terminal board
[2] Supply leads
[3] SR current relay
[4] Brake coil

BU - blue
RD - red
WH - white

4.1.12 BSR - Motor = 460V; Brake = 460V

Brake Control: BSR. Motor configured for high voltage. Brake voltage matches the high motor voltage.

- Example: 230V △△ / 460V △ motor configured for 460V (△)
- Brake voltage is 460V



Example: 460V

68203 _ 09 02 00 R72-2 US

[1] Motor terminal board

[2] Supply leads

[3] SR current relay

BU - blue RD - red WH - white

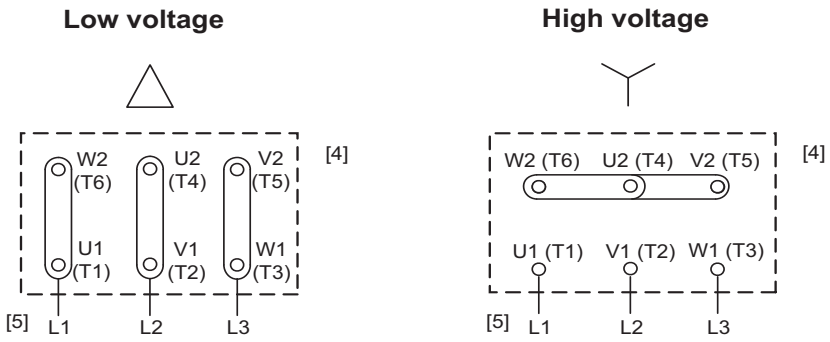
5 R13

Connection Type R13

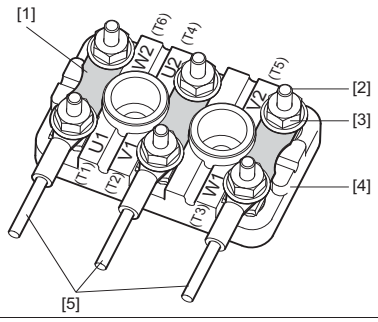
Single Speed, Dual Voltage

Example voltages:

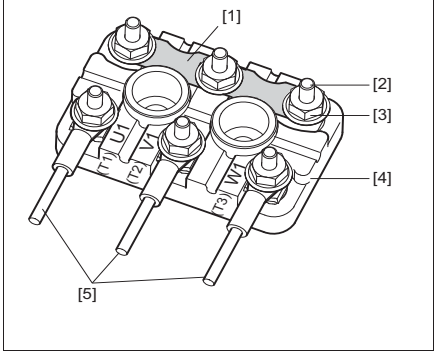
Low voltage △	High voltage ⋎
208V	360V
220V	380V
230V	400V
266V	460V
330V	575V



Arrangement of terminal links with △ connection
Motor size DR.71-DR.225:



Arrangement of terminal links with ⋎ connection



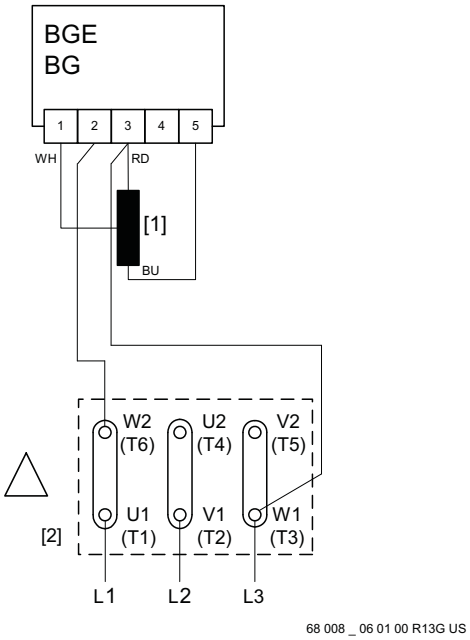
[1] Terminal link
[2] Terminal stud
[3] Flange nut
[4] Terminal board
[5] Voltage supply (Customer connection)

5.1 Brake Voltage Supplied from the Motor

5.1.13 BGE/BG - Motor = low (△) voltage; Brake = low (△) voltage

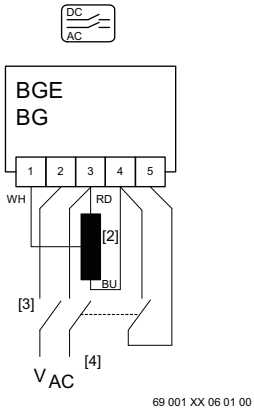
Brake Control: BGE/BG. Motor configured for low voltage. Brake voltage matches the low motor voltage.

- Example: 230V △ / 400V ⅄ motor configured for 230V (△)
- Brake voltage is 230V (normal reaction time)



68 008 _ 06 01 00 R13G US

* BGE/BG Rapid Reaction Time



69 001 XX 06 01 00

[1] Brake coil

[2] Terminal board

[3] Customer supplied contacts

[4] Brake supply voltage

BU - blue

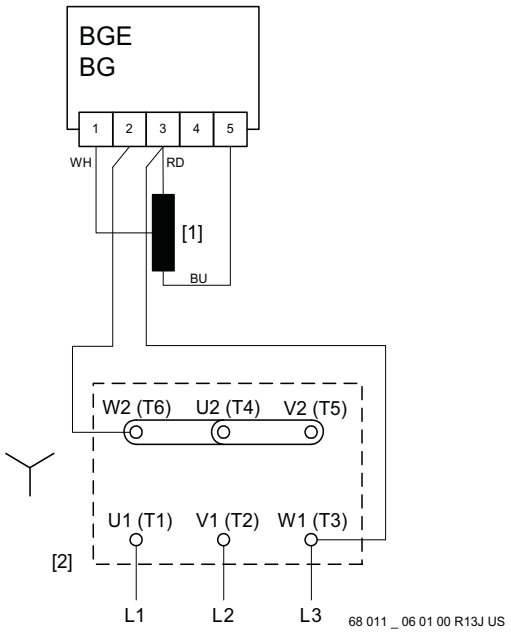
RD - red

WH - white

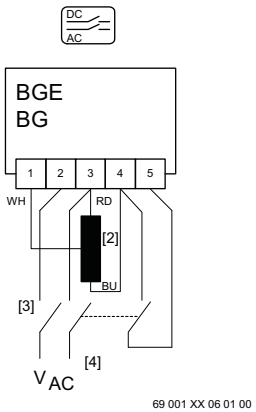
5.1.14 BGE/BG - Motor = high (Y) voltage; Brake = low (Δ) voltage

Brake Control: BGE/BG. Motor configured for high voltage. Brake voltage matches the low motor voltage.

- Example: 330V Δ / 575V Y motor configured for 575V (Y)
- Brake voltage is 330V (normal reaction time)



* BGE/BG Rapid Reaction Time



[1] Brake coil

[2] Terminal board

[3] Customer supplied contacts

[4] Brake supply voltage

BU - blue

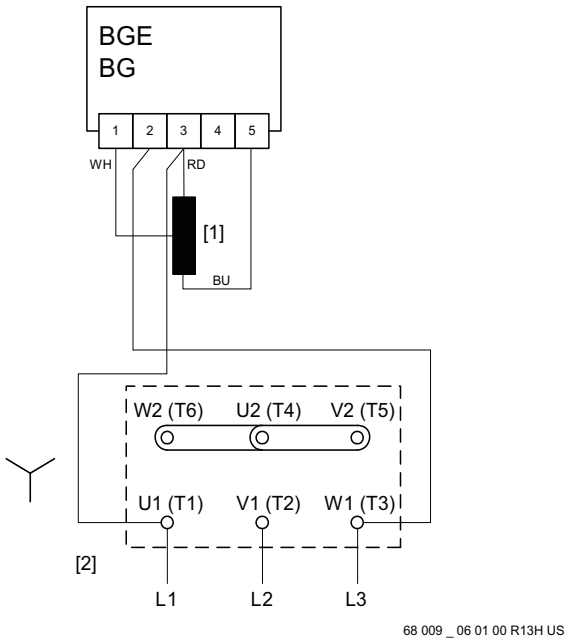
RD - red

WH - white

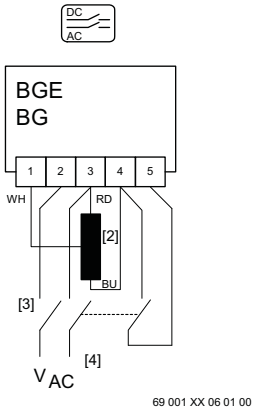
5.1.15 BGE/BG - Motor = high (ᛉ) voltage; Brake = high (ᛉ) voltage

Brake Control: BGE/BG. Motor configured for high voltage. Brake voltage matches the high motor voltage.

- Example: 266V △ / 460V ᛉ motor configured for 460V (ᛉ)
- Brake voltage is 460V (normal reaction time)



* BGE/BG Rapid Reaction Time



[1] Brake coil

[2] Terminal board

[3] Customer supplied contacts

[4] Brake supply voltage

BU - blue

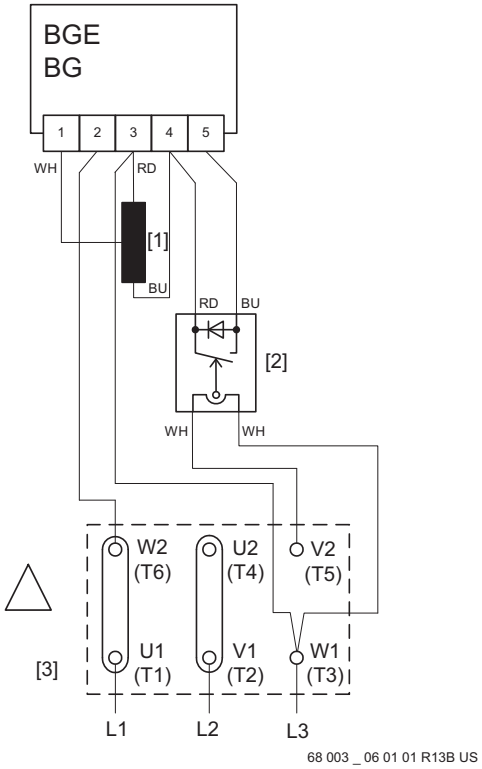
RD - red

WH - white

5.1.16 BSR - Motor = low (△) voltage; Brake = low (△) voltage

Brake Control: BSR. Motor configured for low voltage. Brake voltage matches the low motor voltage.

- Example: 230V △ / 400V ⅄ motor configured for 230V (△)
- Brake voltage is 230V



[1] Brake coil

[2] SR Current relay

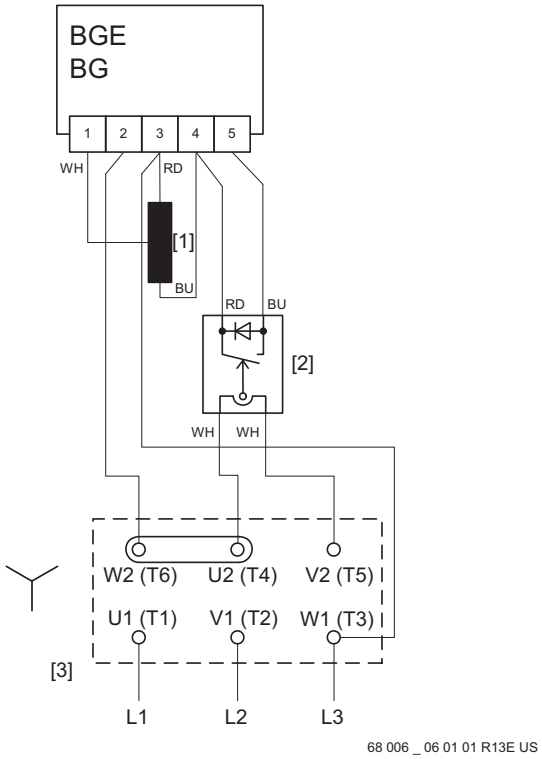
[3] Terminal board

BU - blue RD - red WH - white

5.1.17 BSR - Motor = high (Y) voltage; Brake = low (△) voltage

Brake Control: BSR. Motor configured for high voltage. Brake voltage matches the low motor voltage.

- Example: 330V △ / 575V Y motor configured for 575V (Y)
- Brake voltage is 330V



[1] Brake coil

[2] SR Current relay

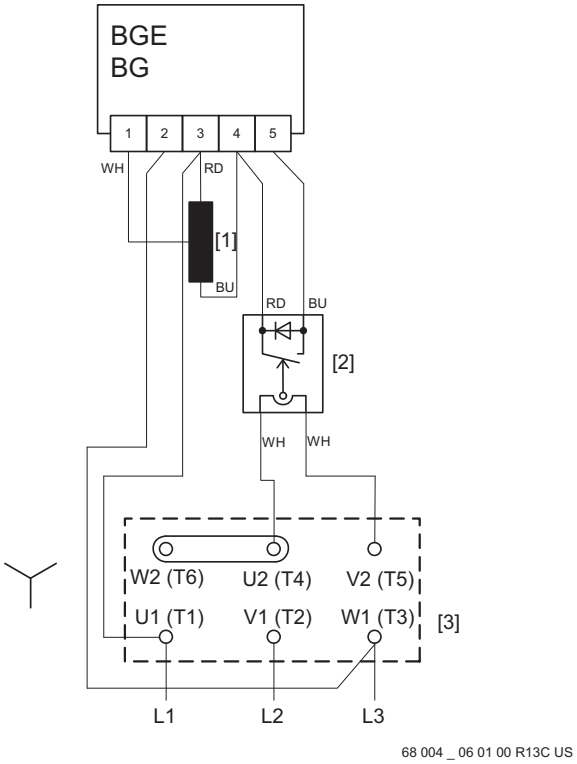
[3] Terminal board

BU - blue RD - red WH - white

5.1.18 BSR - Motor = high (Y) voltage; Brake = high (Y) voltage

Brake Control: BSR. Motor configured for high voltage. Brake voltage matches the high motor voltage.

- Example: 266V △ / 460V Y motor configured for 460V (Y)
- Brake voltage is 460V



[1] Brake coil

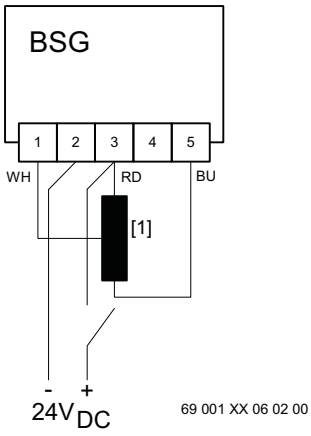
[2] SR Current relay

[3] Terminal board

BU - blue RD - red WH - white

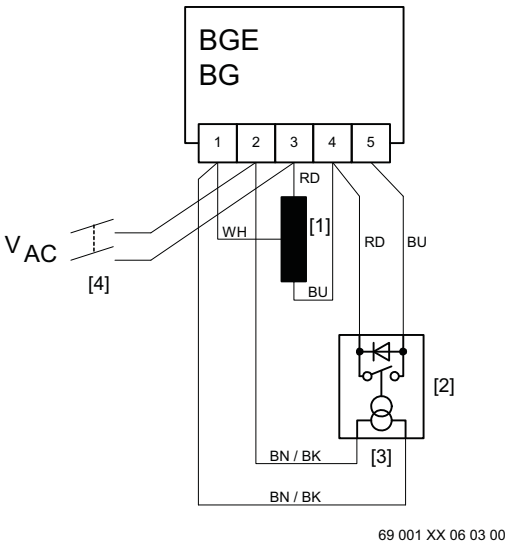
6 BSG and BUR brake connection

Brake control system BSG



Brake control system BUR

Connecting to the terminal board of the motor is not permitted.



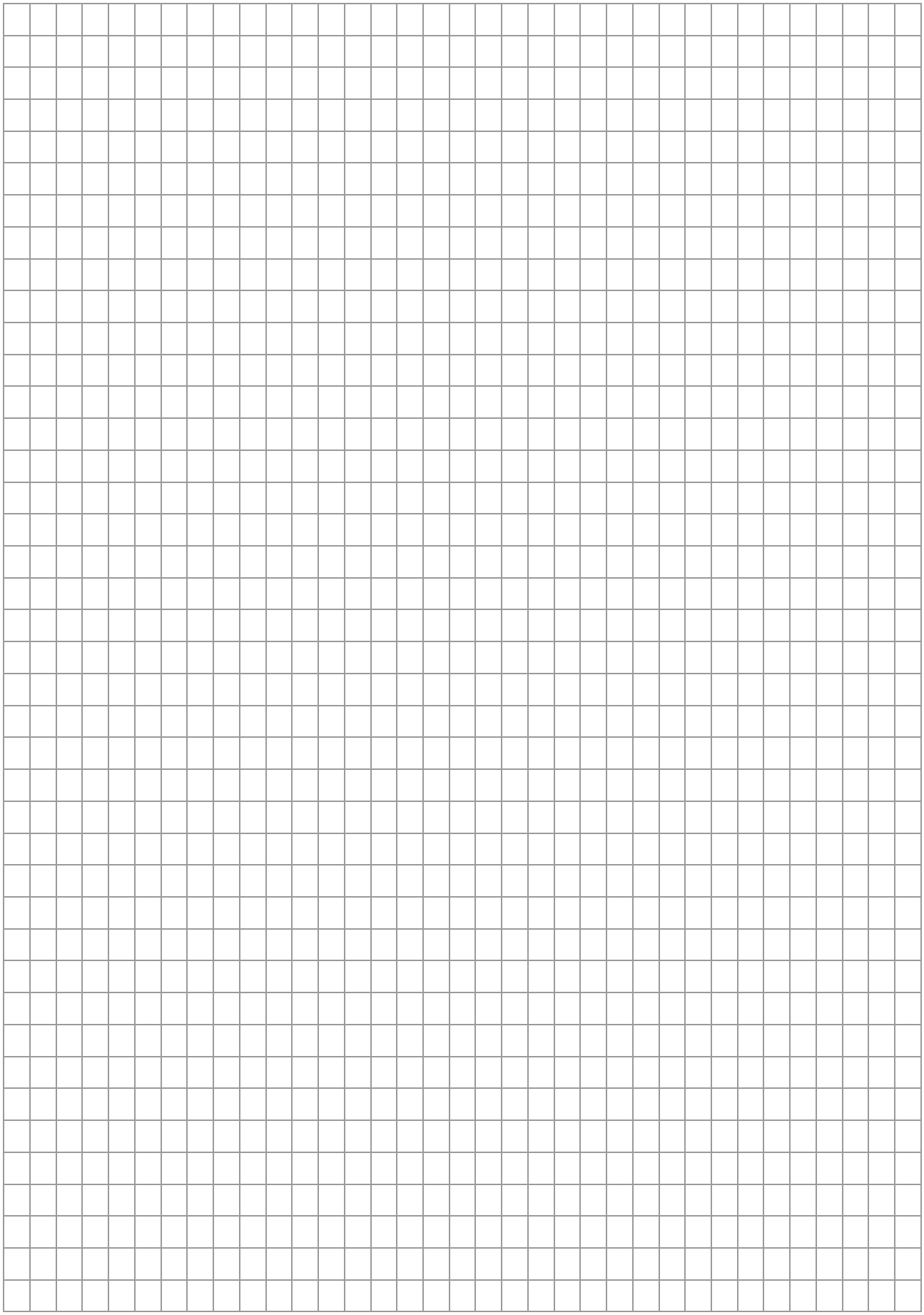
[1] Brake coil

[2] Voltage relay UR 11/15

[3] UR11 (42-150V) = BN
UR15 (150-500V) = BK

[4] Brake voltage supply

BU - blue
RD - red
WH - white
BK - black
BN - brown



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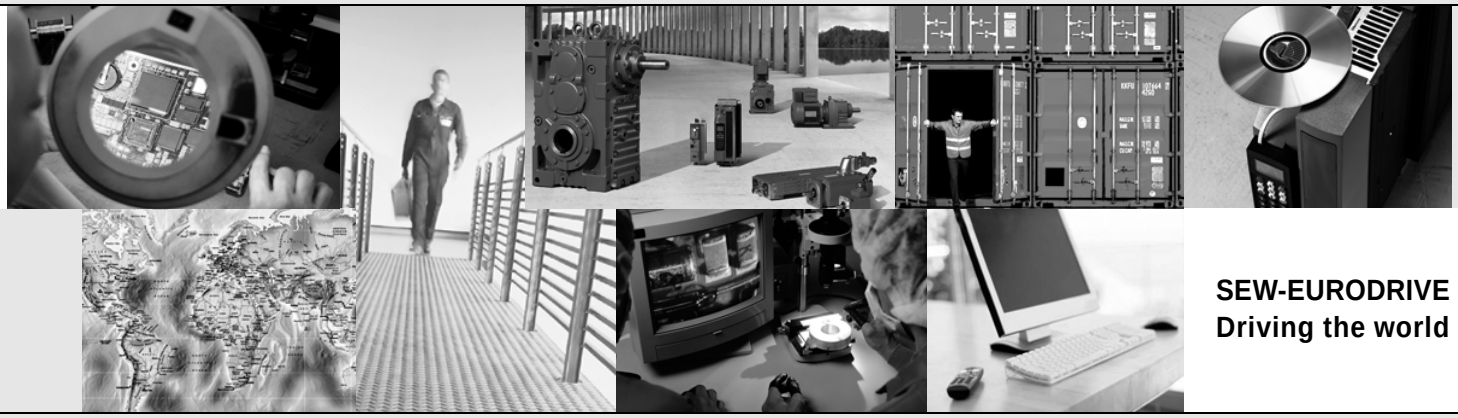

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